

COLORADO HELICOPTERS, INC.

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U.S. STC'ed Side Hook Bracket for the Hughes and McDonnell Douglas 500, 520N, and 600 Series Aircraft.

[Click here for detailed photographs of the Side Hook Bracket in operation.](#)

Colorado Helicopters, Inc. holds the FAA STC and PMA for a very unique side hook. It is certified on Hughes 500D and McDonnell Douglas 500E, F, FF, 520N (Notar), and MD 600 helicopters.

The Purpose of the side hook bracket is to allow the pilot to quickly rig a Hughes or McDonnell Douglas 500, 520, or 600 Series helicopter for pulling sockline on powerline construction projects. The system is certified for a maximum side pull load of 1,900 lbs.

see the photograph of the components of the system. The 12" ruler in the photograph is simply to give you an idea of the size of the device. It is very small compared to most side hook setups.

The bracket (in the center of the photograph) is inserted into the rear step hole on the left side of the helicopter. The bracket is pinned in place with the same quick release pin that just held the left rear step in place. The quick release pin holding the step in place has a shear strength of about 8,000 lbs. The helicopter cargo hook is then removed from the belly of the aircraft and is pinned in place on the bracket for side pull operations.

Once the initial installation is completed, it takes the pilot less than one minute to move the original cargo hook from the belly to the side mount position or from the side mount position back to the belly. In both positions the same electrical and manual releases work as always.

For the initial installation the cargo hook manual release cable must be replaced permanently with a longer one (like the one in the photograph). It is seven inches longer than the normal manual release cable. The normal cable proved to cause some unnecessary premature releases. CHI holds the STC and PMA for these longer cables.



The placard (in the photograph) is mounted on the side of the aircraft near the side hook installation (very close to the left rear step hole). It is required by the FAA in the USA. It may not be required in other countries. The quick release pin in the photograph permanently replaces the bolt that now holds the cargo hook on the belly.

The old bolt is not used again to mount the hook. The same quick release pin (the one in the photograph) is also used

to mount the cargo hook on the side mount bracket.

The small aluminum devices in the photograph are "fuse links," designed to break at a predetermined overload. We put one between the cargo hook, mounted on the side of the helicopter, and the sockline to insure that the airframe of the aircraft is not overloaded due to a snag in the sockline while the pilot is pulling rapidly. Side pulling speeds can be reached in excess of 35 miles per hour with this device.



We also have certified break-a-way swivels that function as both fuse link and swivel. The swivel comes apart but is held together with a calibrated breaking strength pin. If the airframe is about to be overloaded the pin will break and allow the cable being pulled to fall away from the aircraft. You only need to replace the small calibrated pin with a new one and resume pulling operations once the problem is corrected.

We also provide an FAA approved "Flight Manual Supplement" for the Hughes or McDonnell Douglas Flight Manual.

Sockline Pilots love this device. It is quick to change from carrying passengers to pulling sockline and back again to hauling passengers (one minute). When pulling hard, the cyclic stick is centered with full cyclic authority. If the break-a-way device breaks, no unusual attitudes result. The pilot easily comes immediately to a normal hover. There is little possibility of damage to the airframe.

Currently I am selling the device for U.S. \$5,000.00. The breakaway swivels sell for an additional \$300 apiece plus \$10.00 each for the breakaway pins that go inside the swivels. We usually use 5 to 8 of the swivels per job to avoid having to carry them back to the start of the pull each time. If you prefer the aluminum break-a-way links, they sell for U.S. \$50.00 each.



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**COLORADO HELICOPTERS, INC.
10970 HARDY ROAD
COLORADO SPRINGS, CO 80908**

**MD HELICOPTERS, INC.
MODEL 369D, 369E, 369F, 369FF, 500N, 600N**

**FLIGHT MANUAL SUPPLEMENT
FOR
SIDE-PULL HOOK INSTALLATION
369SP-100**

FAA APPROVED

The information contained in this document is FAA approved material, which must be carried in the basic Flight Manual, when the side-pull hook is installed in accordance with COLORADO HELICOPTERS, INC. STC No. SH5230NM.

The information in this document supplements or supersedes the basic manual and supplement CSPD-1-E (ROTORCRAFT CARGO HOOK KIT) only in the items contained herein. For Limitations, Procedures, and Performance Data not contained in the supplement, consult the basic Flight Manual and the CARGO HOOK Supplement.

FAA APPROVAL DATE: October 11, 1991

APPROVED: Ronald F. May
Ronald F. May, Manager
Denver Aircraft Certification Office
Denver, CO. 80249

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LOG OF PAGES			
ORIGINAL.....0			
PAGE	REV. NO.	PAGE	REV. NO.
1	3 I		
2	3 I		
3	3 I		
4	3 I		
5	3 I		

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			<i>for Ronald F. May</i> <i>Denver ACO Manager</i>
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INTRODUCTION

The Side Pull Hook Installation consists of a P/N 369SP-200 Hook Link Assembly, an NAS1358DC7C12F Quick Release Pin, and a P/N 369SP-201 Fuse Link or subsequent approved Fuse Links. A P/N 369H90072 Cargo Hook Kit must be installed. Installation of the side pull hook assembly requires removal of the L.H. Side Step Assembly (P/N 369D26505-1, 369 series and 500N; P/N 600N6501-21 or -23, 600N) and insertion of the 369SP-200 assembly.

The 369SP-200 Assembly must be installed in the aft step insert point of 600N helicopters.

The LW-1325-1 step retention pin is re-installed to retain the side pull hook assembly. The 369H92105-501 hook assembly is removed from the swivel, and attached to the side pull hook link assembly with the quick release pin. The manual and electric Cargo Hook release mechanisms remain functional. Refer to Flight Manual Supplement supplied with Cargo Hook for operation of release.

A suitable link, which will release from the cargo hook must be provided between the hook and the 369SP-201 fuse link or subsequent approved fuse links. A MILLER/PENCO 5-TON or equivalent swivel is normally used to pull sock line through power line towers. Pilot training is required.

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SECTION I - OPERATING LIMITATIONS

The Side Pull Hook Installation is rated to 1900 lb. load. The fuse link or subsequent approved fuse links must be installed in the load line, below the cargo hook. The approved fuse link (P/N 369SP-201) will break away when maximum approved line tension is exceeded.

A PLACARD stating "SIDE-PULL LOAD NOT TO EXCEED 1900 LB." is required to be attached to the helicopter adjacent to the L.H. Step insert point (aft step insert point, 600N).

This installation is approved for Class C Rotorcraft Load Combinations Only.

SECTION II - NORMAL PROCEDURES

The side pull hook installation is to be used only in special purpose operations for which the pilot has been approved under the applicable provisions of FAR 133.37.

SECTION III - EMERGENCY PROCEDURES

No change from basic aircraft flight manual.

SECTION IV - MALFUNCTION PROCEDURES

No change from basic aircraft flight manual.

SECTION V - PERFORMANCE DATA

No change from basic aircraft flight manual.

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

SIDE-PULL HOOK INSTALLATION 369SP-100

RECORD OF REVISIONS

REVISION NO.	ISSUE DATE	DATE INSERTED	BY
0			

REVISION CONTROL PROCEDURE

Revisions to this document are mailed to owner of record. Before inserting a change, ensure this manual is correct. Check the existing List of Effective Pages in this manual to ensure that all prior revisions are inserted. **Do not insert this revision if prior revisions are not inserted.**

LIST OF EFFECTIVE PAGES

PAGE NO.	REVISION	DATE
COVER	0	04/08/08
A	0	04/08/08
i	0	04/08/08
ii	0	04/08/08
1	0	04/08/08
2	0	04/08/08
3	0	04/08/08
4	0	04/08/08

TABLE OF CONTENTS

<u>ITEM</u>	<u>PAGE</u>
RECORD OF REVISIONS	A
LIST OF EFFECTIVE PAGES	A
TABLE OF CONTENTS	i
AIRWORTHINESS LIMITATIONS	1
1.0 SYSTEM DESCRIPTION	2
2.0 INSPECTION AND MAINTENANCE	3
3.0 KIT INSTALLATION	3
4.0 KIT REMOVAL	3
5.0 COMPONENT SERVICE PROCEDURE	3

LIST OF TABLES

<u>TABLE</u>		
I	WEIGHT AND BALANCE DATA	2

LIST OF FIGURES

<u>FIGURE</u>		
1	369SP-100-1 INSTALLATION	4

LIST OF APPENDICES

<u>APPENDIX</u>		
A	STANDARD TORQUE VALUE CHART	4

ADDITIONAL REFERENCE

AC43.13-2B Acceptable Methods, Techniques and Practices – Aircraft Alterations

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AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations Section is FAA approved and specifies inspections and other maintenance required under §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No airworthiness limitation associated with this type design change.

This system has no life-limited components.

[illegible]

1.0 **SYSTEM DESCRIPTION**

The Colorado Helicopters, Inc. Side-Pull Hook is an accessory used to pull sock line during power line construction projects.

1.1 The Side-Pull Hook System installation includes the following major components:

- A. 369SP-200-1 HOOK LINK ASSEMBLY,
- B. MS17984CC812 or equivalent QUICK RELEASE PIN,
- C. 369H92105-501 or alternate approved HOOK ASSEMBLY WITH Electric and Manual Release,
- D. 2500 lb. minimum rated Quick Link,
- E. 369SP-201-2 FUSE LINK or equivalent approved alternate,
- F. LW1325-1 QUICK RELEASE PIN.

TABLE I

WEIGHT AND BALANCE DATA					
ITEM	WEIGHT (lb)	LONGITUDINAL		LATERAL	
		F.S. (in)	MOMENT (in.-lb.)	B.L. (in.)	MOMENT (in.-lb.)
Side-Pull Hook Installation	2	96.9	194	-25.6	-51
Cargo Hook Assy. (Ref.)	6	96.9	581	-25.6	-154

NOTE: The above Weight and Balance Data cannot be used to predict aircraft performance when pulling sockline.

2.0 INSPECTION AND MAINTENANCE

It is the objective of the following installation inspection and maintenance procedure to ensure that components installation is secure and that the individual components meet their function requirements.

3.0 KIT INSTALLATION

Remove the Quick Release Pin from Left-Side Cabin Step. Slide the step out of the mounting hole. Inspect the fuselage structure for cracks or other structural damage.

Inspect the 369SP-200-1 Hook Link Assembly to ensure that the Swivel block moves freely (that the locking collar is properly installed), that the roll pin installed to limit rotational travel of the swivel block is tight and straight, and that the assembly components (straps, hook block, attaching hardware, and the “swivel pin”) are airworthy. Install the swivel pin of the 369SP-200-1 Hook Link Assembly into the Jack-Point mounting hole, and install LW1325-1 pin to hold it in place

Move the cargo hook from the belly location to the Hook Link Assembly, using an MS17984C812 or equivalent approved Quick Release Pin to install. Verify proper operation of the electric and manual cargo hook release mechanisms.

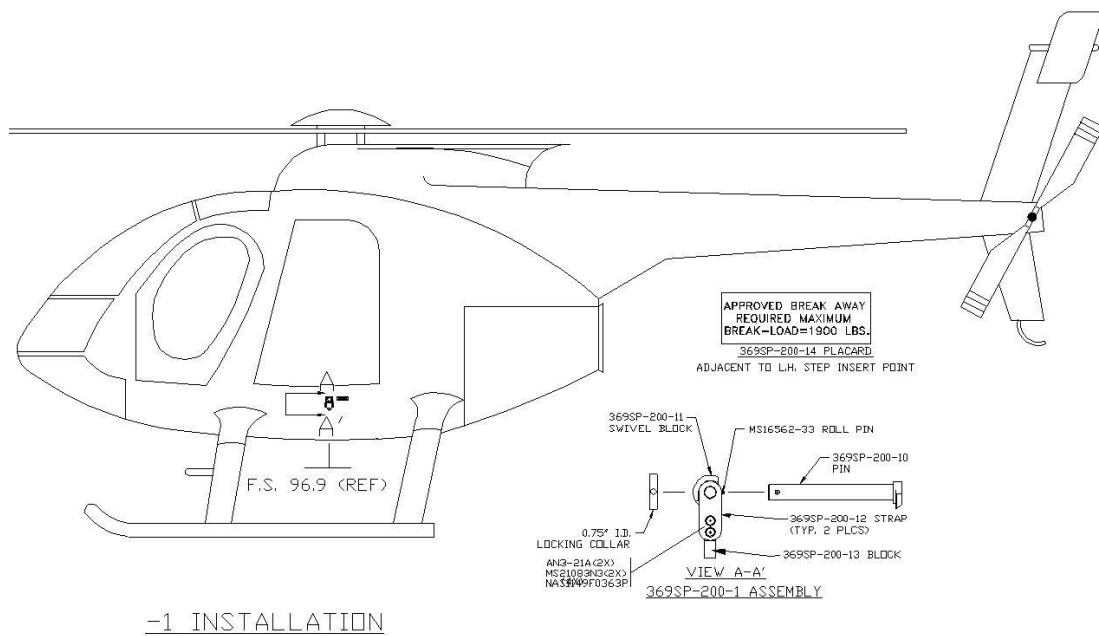
Install the Quick Link (minimum 2500 lb. rating) and the Fuse Link (alternately an approved breakaway swivel assembly).

4.0 KIT REMOVAL

Remove the Fuse Link or Breakaway swivel and Quick Link from the cargo hook. Replace the cargo hook on the belly installation mount. Remove the LW1325-1 pin from the cabin floor, and remove the 369SP-200-1 assembly from the Jack-Point mounting fixture. It is good practice to inspect all components at this time to assure readiness for reuse.

5.0 COMPONENT SERVICE PROCEDURE

If inspection results in finding of nonconforming components, contact Colorado Helicopters Inc. for replacement parts.



**FIGURE 1: 369SP-100-1 INSTALLATION
COMPONENTS, FIGURE 1**

ITEM NO	PN	DESCRIPTION	QTY	TYP
0*	369SP-100-1	HOOK LINK INSTALLATION	REF.	
1	369SP-200-1	HOOK LINK ASSEMBLY	1	EA.
2	369SP-201-2	FUSE LINK (NOT SHOWN)	1	EA.
	ALT. 00550-020	BREAKAWAY SWIVEL (NOT SHOWN) WITH 91106-018 PIN		
	ALT. 00530-20	BREAKAWAY SWIVEL (NOT SHOWN) WITH 91106-018 PIN		
3	MS17984C812	OR APP'D ALTERNATE QUICK RELEASE PIN	1	EA.
4	QUICK LINK	2500 LB. (NOT SHOWN)	1	EA.
5	14323-7	CABLE, app'l 369D, E, F, FF, 500N	1	EA.
	14323-8	CABLE, app'l 600N		
6	LW1325-1	QUICK RELEASE PIN (REF.)	1	EA.

APPENDIX A, STANDARD TORQUE VALUE CHART

RECOMMENDED TORQUE VALUES (inch-pounds) (Reference AC 43.13-1B, Change 1, Dated 9/8/98)				
	BOLTS LOADED PRIMARILY IN SHEAR (IN.-LB.)		MAX. ALLOWABLE TIGHTENING (IN.-LB.)	
Thread Size	Tension type nuts: MS20365, MS21042, MS17825, AN310 (40,000 psi in bolts)	Shear type nuts: MS20364, MS21245, MS17826, AN320 (24,000 psi in bolts)	Nuts: MS20365, MS21042, MS17825, AN310 (90,000 psi in bolts)	Nuts: MS20364, MS21245, MS17826, AN320 (54,000 psi in bolts)
FINE THREAD SERIES				
10-32	20-25	12-15	40	25
The above torque values may be used for all cadmium-plated steel nuts of the fine or coarse thread series which have approximately equal number of threads and equal face bearing areas. * Estimated corresponding values.				
This table includes standard nut and bolt combinations, currently used in aviation maintenance. For further identification of hardware, see AC 43.13-1B, Chapter 7.				